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ABSTRACT

The purpose of this study was to determine if there were differences in perceptions of a black and a white female observer relative to verbal and nonverbal behaviors exhibited by black and white (male and female) teachers toward black and white (male and female) students. A study conducted by Crump (1974) provided the baseline data for comparison. Inter- and intra-rater reliabilities were established in the baseline study and in the present study. Each observer (a black female and a white female) independently categorized and analyzed teacher verbal and nonverbal behaviors using the French and Galloway IDEP matrix which allows simultaneous classification of verbal (indirect or direct) and nonverbal (encouraging or restricting) behaviors. Findings in this study indicate that while both observers appeared to have heard the same thing in the verbal communication interaction, there were extensive differences in what each saw in the nonverbal message. In conclusion, studies regarding communication patterns of different cultures should consider systematic observation techniques that are culturally unbiased, and results that reflect multi-ethnic perceptions. (Author/PCB)

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# BLACK AND WHITE OBSERVERS' PERCEPTIONS OF TEACHER VERBAL AND NONVERBAL BEHAVIORS

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A Paper
Presented at the
American Education Research Association
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April 19-23, San Francisco, California
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Methodological Issues in Research in Education

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# BLACK AND WHITE OBSERVERS' PERCEPTIONS OF TEACHER VERBAL AND NONVERBAL BEHAVIORS*

## INTRODUCTION

Teacher behavior can be best analyzed and understood through proper use of systematic classroom observational techniques. It seems imperative then that reliable and valid observation systems be developed and used. Developers of such systems should set forth specific guidelines to facilitate user comprehension of what the system is designed to measure. In using an observation system, it is important that one observer obtain approximately the same results as obtained by another observer when viewing the same interactions. Numerous observation syster studies have been done using, as a test of reliability, some measure of the agreement between and among raters as to what they see. This measure of agreement is often referred to as inter-rater reliability. Thus, if several raters achieve approximately the same score or obtain a high correlation between/among their scores, the concept of acceptable reliability has been imputed to the instrument itself. This issue has been discussed at some length in a recent article (Herbert and Attridge, 1975).

> "reliability, in the measurement--theoretic sense, is a property of measures obtained through the application of a system, not a property of an instrument, nor a system, nor a record, nor of observers, though qualities of each of these constrain the reliability of measures obtained." (Page 14.)

In the sense of the article, the concept of inter-rater reliability most assuredly does not speak to the question of instrument reliability.

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Indeed, this issue may need more exploration before it can be resolved. An earlier article by Medley and Mitzel (1963: 253-254) discusses "reliabilities" relative not to the instrument itself, but to a correlation of scores obtained by the users of the instrument.

> "We will use the term reliability coefficient to refer to the correlation to be expected between scores based on observations made by different observers at different times. The correlation between scores based on observations made by different observers at the same time will be referred to as a coefficient of observer agreement. A correlation between scores based on observations made by the same observer at different times will be referred to as a stability coefficient."

Although the familiar terms "inter-rater" and "intra-rater" reliabilities are used in this paper, more appropriate terminology might possibly be "coefficient of observer agreement" and "stability coefficient." The term inter-rater reliability is used in this paper not in reference to reliability of an instrument, but more in reference to the "coefficient of observer agreement" obtained through application of an observation instrument in two studies (Crump, 1974; and London, 1975).

## METHOD

In both studies (Crump, 1974; London, 1975) the observation instrument was the French and Galloway IDER Behavioral Analysis System (1968).* This instrument was designed to allow the user simultaneously to record the teacher verbal and nonverbal communication cues in a classroom

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*Validity of nonverbal coding was established by Galloway (1962) using a panel of experts and by French for the IDER (1968) in the same manner. Construct validity for the IDER is based on Flanders (1960).

interaction situation. (See Appendix A) Based on specific constructs of Flanders' system, the IDER system classifies first all teacher statements (verbal cues) as either Indirect or Direct. Behaviors (nonverbal cues) accompanying teacher statements are categorized simultaneously as either Encouraging or Restricting in one of three major sections: (1) teacher talk; (2) student talk; and a separate category (3) silence, confusion, or anything other than teacher or student talk. Indirect teacher verbal behaviors place emphasis on motivation and consist of categories 1-4 of Flanders; Direct teacher verbal behaviors place emphasis on control and consist of categories 5-7 of Flanders. Category 8 is student talk (response) and 9 is student talk (initiated). Encouraging nonverbal behaviors are defined in the IDER System as climate-setting behaviors which foster further interactions. Restricting nonverbal behaviors are referred to as climate-setting behaviors which limit further interactions. The uses of the system are quite clearly delineated, as are the guidelines or rules for its application.

One developer of the IDER System trained persons who used the system (IDER) in three similar studies conducted at the University of Tennessee, Knoxville (Cosper, 1970; Shepard, 1971; and Fowler, 1972). Training and extensive prior work with the Flanders' System enabled Shepard (who worked in each study) to become extremely knowledgeable in the use of the IDER system. Shepard then became a trainer in the two studies described below. For both studies, the teaching behaviors exhibited by teachers toward adjudicated delinquents in state institutions were collected on videotapes. A total of twenty five teachers was videotaped twice, each for approximately

twenty minutes at each taping. Crump analyzed 12-minute segments of both tapings for all 25 teachers; London analyzed 20-minute segments of both tapings for 20 of the 25 teachers selected at random.

Verbal and nonverbal teacher behaviors were recorded at approximate three-second intervals to lessen possibilities of "observer inference" while viewing videotaped teacher-interactions. An 11 x 20 column sheet was used for recording teacher behaviors which were subsequently, transferred to the IDER modified matrix. (See Appendix B.) A coding system facilitated the description of verbal and nonverbal behaviors exhibited by teachers toward a particular student (black/white - male/female).

Separate matrices were used to categorize each teacher's behaviors exhibited toward race/sex identifiable and race/sex that could not be identified from videotape. The number of matrices used for each teacher for tallying purposes varied from three to five, depending on the race/sex composition of the class. The following Scenarios briefly describe procedures used for establishing reliabilities, collecting, recording, and analyzing data, and conclusions of this study.

Scenario I

Using a trainer experienced in the use of the IDER system (and who was trained by one of the developers of the system), the principal rater for this study (Crump) was trained in the technicalities of the system. After the principal rater became adept in use of the system, three tapes were chosen at random from the pool of tapes for establishing inter-rater reliability. The principal rater, a white female doctoral candidate with eight years experience in desegregated public situations, used as the

two raters with whom to establish inter-rater reliability the trainer and another white male who had performed a study using the IDER system (Fowler, 1972). Both males were faculty in higher education.

The same segments of teacher behaviors were analyzed by all three raters. Inter- and intra-rater reliabilities were computed using two processes; the Scott Pi (Scott, 1955), and the P Method. Using the Scott Pi ($\pi$) method, inter-rater reliability range was .81 to .94 ($\bar{X}$ of .86) compared to .90 to .99 ($\bar{X}$ of .96) as measured by the P method. Table I shows the inter-rater reliabilities obtained on three tapes using the three raters and the intra-rater computations ($\pi$ = .82; P = .98) for consistency of the principal rater.

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TABLE I ABOUT HERE

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Scenario II

In an effort to explore if there were significant differences in perceptions of a black and a white rater viewing the same videotaped interactions, a companion study to the original study was designed. Forty tapes (i.e., two segments for each of 20 teachers) were randomly selected from the pool of fifty tapes of the twenty-five teachers used in the baseline study (Crump, 1974) to provide data for the companion study (London, 1975).

In basically a replication of the first study, a black female (from the same school district as the principal rater in the baseline study) was trained by Shepard in the use of the IDER system. Shepard and the

principal rater in this study (London) then trained two black male faculty members of an institution of higher education in the use of the IDER system. Use of black males with comparable education and status with the white males in the baseline study was an attempt to "balance" with the co-raters in the Crump study (i.e., to remove status, sex, and education differences). Thus, principal raters were both female--but of different races -- and the co-raters were of opposite sex but same race with the principal raters.

After the principal rater (London) obtained facility in use of the IDER, and after the co-raters had also demonstrated a degree of facility in using the IDER system, three tapes were chosen at random from the pool of tapes for the computation of inter-rater reliabilities. The range of inter-rater reliabilities as measured by the Scott Pi ($\pi$) method was .86 to .98 ($\bar{X}$ of .94) and .97 to 1.0 ($\bar{X}$ of .98) as measured by the P method. Inter- and intra-rater ($\pi$ = .91; P = .98) reliabilities were computed in the same manner as reported above. The results are shown in Table II.

TABLE II ABOUT HERE

Scenario III

In both studies, teachers and students provided demographic data and were defined and discussed as subjects.

FIGURE I ABOUT HERE

The actual sample for both studies, however, was the verbal and nonverbal behaviors directed by the teacher toward the pupil in the classrooms. A total of 18,902 teacher behaviors was categorized for analyzing in this study (London, 1975) and compared with 13,763 behaviors from the Crump study (1974).* Since all internal tallies in the original study (Crump, 1974) were based on 25 teachers, new tallies were computed in the London study for the 20 teachers common to both studies.

After transference of data to matrices, E/R, I/D, and revised i/d ratios were computed. Before analyzing the two sets of independent data E/R, I/D, and revised i/d ratios were recomputed for the study serving as a baseline.** A coding system was used to identify the two sets of independent data ($R_1$ = London; $R_2$ = Crump).

Numerous internal comparisons were made in analyzing observers' perceptions of verbal and nonverbal communication patterns of teachers toward students (i.e., race and sex of teacher and student were used to determine where differences in perceptions occurred). It is not the purpose of this paper, however, to discuss observers' perceptions of specific internal analyses of teacher-directed behaviors (e.g., black

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*The differences in total tallies for each study occur because more behaviors (i.e., a longer segment of each tape) were analyzed in the companion study (London, 1975) to provide some assurance of overlapping the original observations (Crump, 1974).

**An E/R ratio is computed by dividing total Encouraging behaviors (1-10) by total Restricting behaviors (1-10); an I/D ratio is computed by dividing the totals of columns 1-4 by the totals of columns 5-7; a revised i/d ratio is computed by dividing the totals of columns 1-3 by the totals of columns 6-7. I/D and E/R ratios are compared between the two studies.

male teacher behaviors toward black/white-male/female students). The intent is to summarize major findings regarding agreement of observers' perceptions of teachers' verbal and nonverbal behaviors toward students in general (i.e., race/sex not identifiable) and toward student race groups.

MAJOR FINDINGS AND CONCLUSIONS

After comparing I/D ratios for verbal behaviors of all teachers toward students in general, it appears that raters heard the same thing in the communication interaction. While both raters appeared to have heard approximately the same verbal communication patterns--composite I/D ratios of .391 ($R_1$) and .386 ($R_2$)--there were extensive differences in what each saw in the nonverbal message--composite E/R ratios of 40.180 ($R_1$) and 11.696 ($R_2$). In other words, E/R ratios show that raters were not in agreement in their interpretations of facial gestures, voice intonations, bodily movement, eye contact and other nonverbal components which accompanied the teachers' verbal messages. (Table III)*

TABLE III ABOUT HERE

Verbal behaviors of all teachers were perceived by both observers as more direct than indirect when teachers interacted with students in general. Overt communication with students was in the form of lecturing,

*This comparison is based on composite ratios; that is, ratios computed using all teachers and all groups of pupils. Some difference existed when internal analyses were made on I/D ratios, but the greatest of these (.438 to .632) did not approach the smallest E/R difference (18.469 to 13.658). Note Table V and discussion later.

giving directions, critizing the student, and justifying teacher authority.

A summary of composite E/R and I/D ratios by teacher race/sex suggest differences in perceptions of consistent and/or inconsistent communication patterns of teachers. That is, I/D ratios indicate that observers were congruent in perceiving consistent verbal (direct) communication patterns of teachers in general (e.g., black, white, male, and female). Although there appeared to have been perceptual differences regarding verbal behaviors of female teachers (indirect to direct), the difference between I/D ratios (.045) is still quite minor. When comparing E/R ratios, however, it is quite evident that incongruency prevailed in observers' perceptions of inconsistent nonverbal communication patterns of same teacher race/sex. The black female observer ($R_1$) perceived all teachers by race and sex as exhibiting more Encouraging to Restricting nonverbal behaviors than was perceived by the white female observer ($R_2$). (See Table IV.)

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TABLE IV ABOUT HERE

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While both observers agreed that the communication climate of teachers was nonverbally Encouraging toward students in general, some differences were noted in perceptions of nonverbal behavior toward students by race. The black female observer ($R_1$) perceived teachers to transmit more Encouraging nonverbal cues toward white students and more Restricting nonverbal cues toward black students (i.e., teachers tended to move closer to white students when verbally communicating, reinforcing responses of students by positive nod of head, touching, turning pages for students in textbooks, occasional

smiling, and frequent eye contact with one student or another). The white female observer ($R_2$), on the other hand, perceived the opposite; more Encouraging nonverbal cues toward black students and more Restricting nonverbal cues toward white students. (See Table V.)

TABLE V ABOUT HERE

While both observers perceived verbal communication patterns of teachers toward students in general as limiting in further student/teacher interactions (i.e., exhibiting more direct that indirect verbal behaviors), nonverbal communication patterns of same teachers toward same students were perceived as more Encouraging than Restricting. The total number of Encouraging behaviors exhibited by teachers represented 97.57 percent of all behaviors (18,902) for $R_1$. Of the total teacher behaviors perceived by $R_2$ (13,763), 92.12 percent were Encouraging. Restricting behaviors for all teachers for $R_1$ represented only 2.43 percent of the total (459) as compared to 7.88 percent of the total Restricting behaviors (1,084) for $R_2$.

It is possible that the wide variance in observers' perceptions of teachers' nonverbal cues was due to the white female observer (when viewing videotaped teacher behaviors) focusing to a large extent upon the verbal rather than the nonverbal message, hence neglecting to assess the totality of the message being communicated. In contrast, in assessing verbal behaviors, the black female observer perhaps placed more emphasis on the nonverbal cues (e.g., focusing to a great extent on spatial distance with which one feels comfortable, eye contact, and so on).

Connolly (1974) supports this conclusion in a study of the use of space between blacks and whites engaged in conversation. Both groups were asked to choose the most appropriate spacing for conversation from pictures showing two men facing each other at a distance of 12 to 84 inches. Whites were most comfortable in conversing with another individual when the distance was from 26 to 28 inches; blacks preferred a distance of 21 to 24 inches. At a distance beyond 36 inches, blacks chose to end the conversation; whites chose to end the conversation at a distance of 44 inches. In analyzing eye contact of blacks and whites engaged in conversation, La France and Mayo (1974) found that whites tended to look away 56 percent of the time when speaking to another person and at him 85 percent of the time when listening. The opposite was found in speaking/listening behaviors of blacks (i.e., looking more at their companion when they were speaking than when they were listening). These differences in listener-speaker behaviors oftentime lead to difficulties in communication.

Further support is given in a study conducted by Hall (1969). Hall contends that in addition to the element of time, which represents a common source of misunderstanding among black and white communicators, the voice, feet, hands, eyes, body and space are all handled differently. The failure of blacks and whites to communicate effectively may be due to both parties misreading each others behaviors. Because the nonverbal behaviors of blacks tend to be subtle, such behaviors oftentimes go undetected by whites in the communication process. Other studies suggest that people attend to some aspects of a communication event and not to others, and that such selective attention may be a function of cultural, subcultural, and individual differences. People from lower socioeconomic backgrounds, for example, may

have had limited experiences with verbal language and tend to be more responsive to tone or nonverbal language. (Bernstein, 1965; Weiner and Mehrabian, 1968; Kashinsky and Weiner, 1969.) Because we Americans tend to be more content than structure oriented, the importance of culture is often minimized in communication.

This paper raises several important questions which should be given consideration: (1) When black and white observers are trained together as raters for observational studies (and are "forced" to achieve acceptable rater agreements), does the training process "wash out" cultural realities? (2) Can systematic observation instruments be designed to preserve aspects of culture in analyzing teacher behavior (i.e., within the instrument itself)? (3) Can comparisons of ratings (where rater agreements have been achieved within two or more cultures) on observation systems lead to better understandings of cultural differences and communications?*

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*No reliability coefficients between major raters were computed originally. The main idea was to obtain satisfactory independent inter-rater agreements and then observe ratio similarities/differences. The author recognizes the potential for computing some coefficients for more detailed analyses.

**TABLE I**

**RESEARCHER RELIABILITY/CONSISTENCY IN THE USE OF THE IDER SYSTEM (CRUMP)**

| Scott Pi Method[a] | | | | | P Method[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Tapes | | | | | Tapes | | | |
| Inter-Rater Reliability | 1 | 2 | 3 | $\bar{X}$ | Inter-Rater Reliability | 1 | 2 | 3 | $\bar{X}$ |
| $0_2/0_1$ | .946 | .721 | .932 | .866 | $EN_1$ | .981 | .989 | .933 | .967 |
| $0_3/0_2$ | .851 | .882 | .919 | .884 | $EN_2$ | .956 | .996 | .967 | .973 |
| $0_3/0_1$ | .810 | .853 | .865 | .843 | $N_1N_2$ | .938 | .985 | .903 | .942 |
| $\bar{X}$ | .869 | .818 | .905 | .864 | $\bar{X}$ | .958 | .990 | .934 | .960 |
| | Tapes | | | | | Tapes | | | |
| Intra-Rater Reliability[c] | 1 | 2 | 3 | | Intra-Rater Reliability | 1 | 2 | 3 | |
| $0_1/0_1$ | —— | —— | .821 | | $0_1/0_1$ | —— | —— | .982 | |

[a] $0_1$ = Principal Observer; $0_2$ = White male; $0_3$ = White male

[b] E = Expert; $N_1$ = Neophyte; $N_2$ = Neophyte

[c] R = Reliabilities were computed using first and second ratings for Tape 3

**TABLE II**

**RESEARCHER RELIABILITY/CONSISTENCY IN THE USE OF THE IDER SYSTEM (LONDON)**

| Scott Pi Method[a] | | | | | P Method[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Tapes | | | | | Tapes | | | |
| Inter-Rater Reliability | 1 | 2 | 3 | $\bar{X}$ | Inter-Rater Reliability | 1 | 2 | 3 | $\bar{X}$ |
| $0_2/0_1$ | .962 | .920 | .864 | .915 | $EN_1$ | .992 | .970 | .992 | .984 |
| $0_2/0_3$ | .981 | .920 | .959 | .953 | $N_1N_2$ | .978 | 1.000 | .984 | .987 |
| $0_1/0_3$ | .981 | .940 | .864 | .928 | $EN_2$ | .985 | .970 | .992 | .982 |
| $\bar{X}$ | .974 | .926 | .895 | .944 | $\bar{X}$ | .985 | .980 | .989 | .984 |
| | Tapes | | | | | Tapes | | | |
| Intra-Rater Reliability[c] | 1 | 2 | 3 | | Intra-Rater Reliability | 1 | 2 | 3 | |
| $0_1/0_1$ | — | — | .918 | | $0_1/0_1$ | — | — | .984 | |

[a] $0_1$ = Principal Observer $0_2$ = Black male; $0_3$ = Black male

[b] E = Expert; $N_1$ = Neophyte; $N_2$ = Neophyte

[c] R = Reliabilities were computed using first and second ratings for Tape 3

DEMOGRAPHIC DATA FOR TEACHER POPULATION
AND PUPIL POPULATION

| Population | Sex | RACE | | |
|---|---|---|---|---|
| | | Black | White | Total |
| Teacher (N=20) | Male | 3 | 6 | 9 |
| | Female | 5 | 6 | 11 |
| | Total | 8 | 12 | 20 |
| Pupil (N=254) | Male | 71 | 110 | 181 |
| | Female | 30 | 43 | 73 |
| | Total | 101 | 153 | 254 |

Figure 1. Race and sex composition of teacher/student population.

TABLE III

COMPOSITE RATIO COMPUTATIONS BASED
ON MAJOR STUDY VARIABLES

| Variables | Researcher | Total Teacher Behavior (N=20) | Percent | Teacher Mean | Ratios Based on Totals |
|---|---|---|---|---|---|
| Encouraging (E) 1-10 | 1 | 18,443 | 97.57 | 922.15 | |
| | 2 | 12,679 | 92.12 | 633.95 | E/R 40.180 ($R_1$) |
| Restricting (R) 1-10 | 1 | 459 | 2.43 | 22.95 | E/R 11.696 ($R_2$) |
| | 2 | 1,084 | 7.88 | 54.20 | |
| Indirect (I) 1-4 | 1 | 2,489 | 13.17 | 124.45 | |
| | 2 | 2,021 | 14.68 | 101.05 | I/D .391 ($R_1$) |
| Direct (D) 5-7 | 1 | 6,359 | 33.64 | 317.96 | I/D .386 ($R_2$) |
| | 2 | 5,236 | 38.04 | 261.80 | |
| Total | 1 | 18,902 | 100.00 | 945.10 | |
| | 2 | 13,763 | 100.00 | 688.15 | |

TABLE IV

COMPOSITE E/R AND I/D RATIOS BY TEACHER VARIABLES

| Researcher | All Teachers | | Black Teachers | | White Teachers | | Male Teachers | | Female Teachers | |
|---|---|---|---|---|---|---|---|---|---|---|
| | E/R | I/D | E/R | I/D | E/R | I/D | E/R | I/D | E/R | I/D |
| $R_1$ | 40.180 | .391 | 26.467 | .423 | 60.491 | .370 | 66.720 | .285 | 29.006 | .511 |
| $R_2$ | 11.696 | .386 | 6.381 | .372 | 23.579 | .394 | 22.794 | .304 | 8.230 | .466 |

TABLE V

RATERS' PERCEPTIONS OF ALL TEACHERS' BEHAVIORS TOWARD STUDENTS' RACE BY MAJOR STUDY VARIABLES

| Variables | Researcher | Black Students | White Students | $X^2$ | Totals (N=254) |
|---|---|---|---|---|---|
| Encouraging (E) | 1 | 3,897 | 4,534 | 53.09* | 18,443 |
| | 2 | 3,674 | 3,376 | | 12,679 |
| Restricting (R) | 1 | 211 | 142 | 15.42* | 459 |
| | 2 | 269 | 312 | | 1,084 |
| Indirect (I) | 1 | 710 | 897 | 40.44* | 2,489 |
| | 2 | 807 | 640 | | 2,021 |
| Direct (D) | 1 | 1,619 | 1,966 | 10.81* | 6,359 |
| | 2 | 1,276 | 1,826 | | 5,236 |
| E/R Ratio | 1 | 18.469 | 31.929 | | 40.180 |
| | 2 | 13.658 | 10.820 | | 11.696 |
| I/D Ratio | 1 | .438 | .456 | | .391 |
| | 2 | .632 | .350 | | .386 |

*Significant at the .05 level, df = 1, for $X^2 \geq 3.84$.

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## APPENDIX A

### SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS USING NONVERBAL CATEGORIES

| | | VERBAL | NONVERBAL | |
|---|---|---|---|---|
| | | | ENCOURAGING | RESTRICTING |
| TEACHER TALK | Indirect Influence | 1. ACCEPTS FEELINGS | 1. | 1. |
| | | 2. PRAISES OR ENCOURAGES | 2. *CONGRUENT:* nonverbal cues reinforce and further clarify the credibility of a verbal message. | 2. *INCONGRUENT:* contradiction occurs between verbal and nonverbal cues. |
| | | 3. ACCEPTS OR USES IDEAS OF STUDENTS | 3. *IMPLEMENTATION:* occurs when the teacher actually uses student's idea either by discussing it, reflecting on it, or turning it to the class for consideration. | 3. *PERFUNCTORY USE:* occurs when the teacher merely recognizes student's idea by automatically repeating or restating it. |
| | | 4. ASKS QUESTIONS | 4. *PERSONAL:* face-to-face confrontation. | 4. *IMPERSONAL:* avoidance of verbal interchange in which mutual glances are exchanged. |
| | Direct Influence | 5. LECTURES | 5. *RESPONSIVE:* change in teacher's pace or direction of talk in response to student behavior, i.e., bored, disinterested, inattentive. | 5. *UNRESPONSIVE:* inability or unwillingness to alter the pace or direction of lecture disregarding pupil cues. |
| | | 6. GIVES DIRECTIONS | 6. *INVOLVE:* students are involved in clarification or maintenance of learning tasks. | 6. *DISMISS:* teacher dismisses or controls student behavior. |
| | | 7. CRITICIZES OR JUSTIFIES AUTHORITY | 7. *FIRM:* criticisms which evaluate a situation cleanly and crisply and clarify expectations for the situation. | 7. *HARSH:* criticisms which are hostile, severe, and often denote aggressive or defensive behavior. |
| STUDENT TALK | | 8. STUDENT TALK (RESPONSE) | 8&9. *RECEPTIVE:* involves attitude of listening and interest, facial involvement, and eye contact. | 8&9. *INATTENTIVE:* involves a lack of attending eye contact and teacher travel or movement. |
| | | 9. STUDENT TALK (INITIATION) | | |
| | | 10. SILENCE OR CONFUSION | 10. *COMFORT:* silences characterized by times of reflection, thought, or work. | 10. *DISTRESS:* instances of embarrassment or tension-filled moments, usually reflecting disorganization and disorientation |

## APPENDIX B

### REVISED IDER MATRIX FOR TRANSFORMATION OF TALLY